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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/491,864	01/26/2000	Sergei Tanygin	2493-026	9147

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[REDACTED] EXAMINER

FERRIS III, FRED O

ART UNIT	PAPER NUMBER
2123	

DATE MAILED: 12/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/491,864	TANYGIN, SERGEI <i>(Signature)</i>
	Examiner	Art Unit
	Fred Ferris	2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 26 January 2002.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-22 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 26 January 2002 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

1. *Claims 1-22 have been presented for examination. The examiner rejects claims 1-22.*

Drawings

2. *This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.*

Information Disclosure Statement

3. *The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered. For example, the specification makes reference to "Satellite Tool Kit (STK)", "JPL Spice Tool Kit", "Navigator", and "Astogator" which appear to contain information critical to the operation of the claimed invention that has not been disclosed. Hence, these references have not been considered.*

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. **Claims 1-22 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.**

The claimed invention appears to be directed toward the creating coordinate systems and primitives (geometrical relationships and coordinate definitions) via a graphical user interface from user inputs, data files, and other numeric means.

The specification indicates that the claimed invention relates to a spacecraft maneuver analyst used to model orbital maneuver phenomena for any possible coordinate system but gives no information on how orbital maneuver models relate to different coordinate systems.

*Per claims 1, 14, 17, 20-22: Independent claims 1, 14, 17, 20-22, for example, are claiming a method and computer system/medium for **creating a target object** based on a **parent object** via a **finding** and **building** operation. However, the specification provides no information on precisely how the claimed invention finds the target object in terms of the parent object, or how the building operation obtains transformation based on parent objects. The specification gives no algorithms, techniques, or adequate description that would allow one skilled in the art to make and/or use the invention.*

*While the specification makes reference to calling the **FindIn function** (pages 9-11) for finding coordinate objects, point objects, vector objects, etc., it gives no information on how the function actually achieves these results sufficient to allow on*

skilled in the art to make and/or use the invention. In general, the specification reads as a “wish list” of features that could be incorporated into the claimed invention, but provides little information on specifically how these features are realized. Dependent claims inherit this defect.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Per claims 1, 14, 17, 20-22: Independent claims 1, 14, 17, 20-22, recite a “combined transformation” which is vague and indefinite. The specification states that a target object is created by a “combined transformation” of parent objects that are realized by a first and second transformation but only vaguely states that the process accomplished using “information explicitly provided by a user” and makes no reference to what information is used or how it is combined.

In general, the claims appear to be more drawn toward the use of popular and well-known hierarchical data techniques (i.e. parent / child relationships, tree traversing, etc.) and simple data search techniques that do not clearly define applicants invention as it relates to the position and motion of bodies in three-dimensional space and spacecraft maneuver analysis. Dependent claims inherit this defect.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

While the specification for the claimed invention is delinquent in the areas previously cited under 35 U.S.C. 112 rejections, the examiner has applied prior art rejections based on the limited scope of information contained in the specification:

5. ***Claims 1-22 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by "Modeling Orbiting and Rotating Bodies Using VRML", H.A. Lilly, Alabama School of Mathematics and Science, IEEE 1998***

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Per claims 1-22: Lilly discloses a computer method for the position and motion of bodies (spacecraft) in three-dimensional space.

Page 1 of Lilly discloses the following:

"the steps to show orbiting, rotating, and tilting bodies including how to create the objects, visually show the paths of the orbits, and set the time length for rotations, tilting of axes, and orbits for bodies. Methods for creating the x, y and z coordinates of orbits using trigonometric functions and the timing for placement of objects are also explained."

Page 3 of Lilly also discloses the following:

"The key word "Transform" is used to create an object or collection of objects. The key word "translation" places the center of the object at the x, y, and z coordinates given, which in the above case is at 0 0 0 or the origin. The key word "children" is used to group objects."

Page 11 of Lilly further discloses the following:

"The color and texture of the satellite are supplied by the file "rock.gif." The "PositionInterpolator" moves objects by translation. As with all interpolators, the "PositionInterpolator" has a key and a keyValue. In the "PositionInterpolator", a set consists of three numbers which are the X, Y, and Z coordinates. The center of the object moves to the X, Y, and Z coordinates at the prescribed time. The numbers in the key specify the timing of each movement."

Also see pages 4-9.

Claims 1-22 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by U.S. Patent 6,044,306 issued to Shapiro et al.

Per claims 1-22: Shapiro discloses a computer method for moving geometric shapes (objects) based on position of a parent cell (CL23-L59) from a target (CL23-L33) and the transformation of an objects coordinates from one coordinate system to another. (CL1-L32-48, CL3-L27, CL5-L27-33, Figs. 9-12)

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Shapiro discloses the following: (CL1-L32-48)

"a shape (a set of points) S with its own coordinate system moving in a d-dimensional Euclidean space W with respect to some global fixed coordinate system." And "the motion of the shape S can be expressed as a one-parameter set of transformations in the higher-dimensional configuration space C. For the purposes of this invention, the concepts of "transformation" and "motion" are interchangeable and are commonly represented by matrices."

Also see Figures 1, 2, 7, and 8

Conclusion

6. *The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, careful consideration should be given prior to applicant's response to this Office Action.*

U.S. Patent 6,089,507 issued to Parvez et al teaches spacecraft orbit models and coordinate systems.

U.S. Patent 5,267,167 issued to Glickman teaches satellite orbit and coordinate system transformation.

U.S. Patent 5,109,346 issued to Wertz teaches satellite orbit and coordinate system transformation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred Ferris whose telephone number is 703-305-9670 and whose normal working hours are 8:30am to 5:00pm Monday to Friday.

Any inquiry of a general nature relating to the status of this application should be directed to the group receptionist whose telephone number is 703-305-3900.

The Official Fax Numbers are:

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December 18, 2002



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